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(71) Applicant  
**J. Mann and Son Limited**

(Incorporated in United Kingdom)

Saxham, Bury St. Edmunds, Suffolk IP28 6QZ

(72) Inventors  
**Ivan Austen Lee**  
**Trevor Ian Booth**

(74) Agent and/or Address for Service  
**Walford & Hardman Brown,**  
 Trinity House, Hales Street, Coventry CV1 1NP

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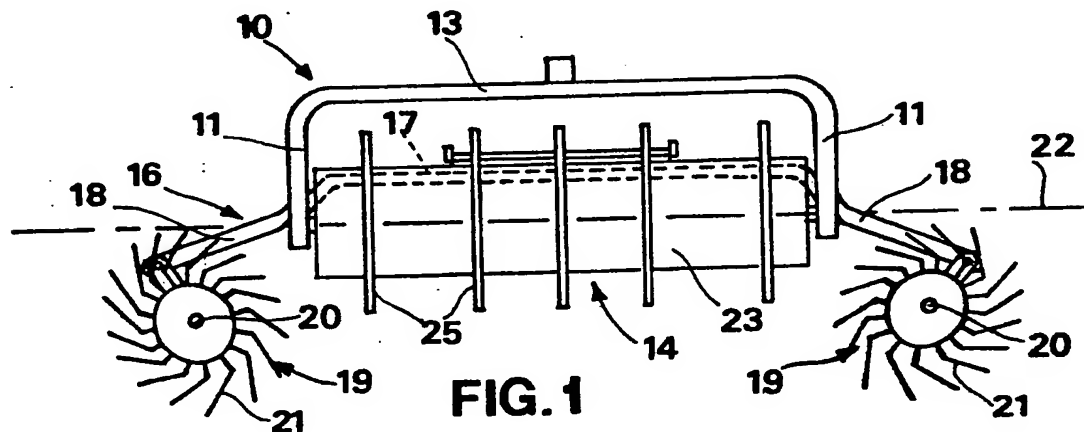
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**A1B**  
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(54) **Swath treatment apparatus**

(57) Swath treatment apparatus is for compacting a swath of crop, such as straw, preparatory to a baling operation.

The apparatus is intended for mounting on the forward end of a tractor and includes a roller 14 which rotates about a horizontal axis 12 during movement of the tractor.

Discs 25 may be fitted around the roller 14 at spaced locations in the axial direction to define the minimum distance from the roller to the ground. Rake wheels 19 mounted at the ends of the roller gather the crop into the roller 14.



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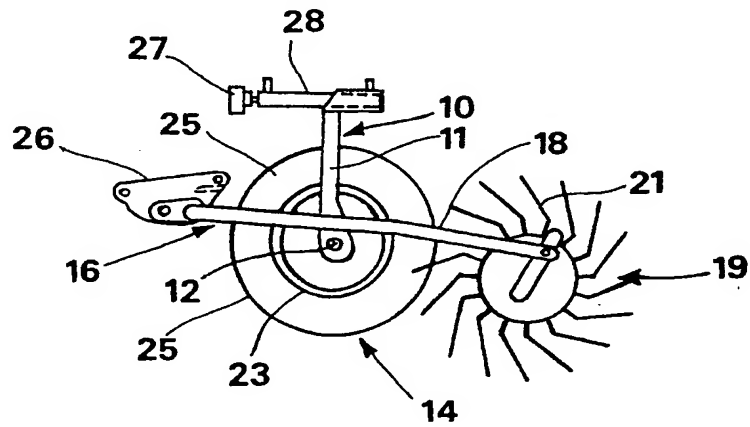
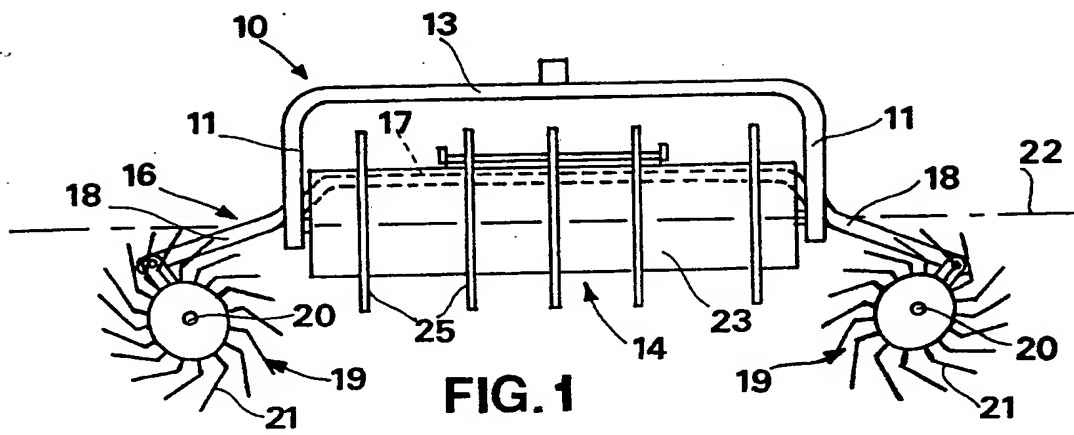


FIG. 2

## SPECIFICATION

### Swath treatment apparatus

- 5 This invention relates to apparatus for treating a swath lying on the ground.

During the gathering of crops, for example straw or hay, a swath consisting of a band of crop is formed which lies on the ground  
10 awaiting gathering up, usually by a crop baling machine. Baling machines are conventionally towed by a tractor and when the swath is wide the wheels of the tractor run over the swath. The swath may also be relatively high  
15 so that the underside of the tractor or the tractor drawbar engages the crop material in the swath. Consequently a swath which is too wide and/or too high can cause problems, especially during a baling operation.

- 20 It is an object of the invention to provide swath treatment apparatus which is capable of providing a swath of more suitable form for baling.

According to the invention swath treatment  
25 apparatus comprises a roller rotatable about a generally horizontal axis, a frame for supporting the roller, and mounting means on the frame whereby the apparatus may be mounted on the forward end of a tractor whereby upon  
30 passage of the tractor over a swath the roller engages the swath to compress the swath against the ground.

- Preferably the frame carries gathering means to the sides of and in advance of the roller to  
35 move crop inwardly into the path of the roller.

The roller may be of generally cylindrical form and may have discs axially-spaced along the roller, the peripheral edges of the discs being spaced from the roller surface and defining the minimum distance of the roller surface from the ground. The edges of the discs  
40 roll over the ground during operation and the disc edges and the roller surface normally engage and compress the swath although this will depend on the depth of the swath being treated.

- As a result of this compression the crop height is reduced and a swath is presented to a baler towed behind the tractor which is relatively more compact.  
50

Further features of the invention will appear from the following description of an embodiment of the invention given by way of example only and with reference to the drawings, in which:

- 55 *Figure 1* is a front elevation of a swath treatment apparatus, and  
*Figure 2* is a side elevation of the apparatus of Fig. 1.

60 Referring to the drawings swath treatment apparatus is shown which is particularly suited to treating a swath prior to a baling operation. The apparatus shown is intended to reduce the width of the swath, if necessary, and to  
65 reduce the height of the swath, which is of

particular value when baling straw or hay using a baler, such as a round baler, which is drawn directly behind the tractor.

- The apparatus is intended for mounting at  
70 the front of a tractor and has a frame including an inverted U-shaped frame element 10 the lower ends of the limbs 11 of which are secured to the ends of a roller shaft or spindle 12 and the horizontal portion 13 of which extends above a roller 14 mounted rotatably  
75 on the spindle 12.

A further frame, element 16 is connected to the element 10 adjacent the spindle 12 and a portion 17 of the element 16 passes around the rear side of the roller 14. The element 16  
80 also has forwardly-directed arms 18 on the forward ends of which are mounted rotatable rake wheels 19.

- The rake wheels 19 are of conventional  
85 form and rotate about inclined axes 20. During rotation by engagement of its tines 21 with the ground and any swath, the wheels 19 act to direct crop material inwardly between the wheels thereby reducing the width of the swath to the width of the roller.  
90

The roller 14 is freely rotatable about a horizontal axis 22 of the spindle 12 and is formed from a metal cylinder 23 the outer surface of which may be dimpled. Secured to the outer  
95 surface and at spaced intervals along the cylinder are annular discs 25 which extend radially of the axis 22 outwardly of the outer surface of the cylinder. The outer edges of the discs 25 all lie at the same distance from the axis 22.  
100

The frame is arranged to be mounted at the forward end of the tractor to move in advance of the tractor while extending generally across the full width of the tractor. Mounting on the tractor is, in this case, by attaching the tractor  
105 front-mounted three-point linkage to brackets 26 on the frame element 16 and to a top link mounting 27 on the frame element 10. The apparatus may be raised from an operative position by a single acting ram 28 and/or by the three point-linkage.  
110

In use the apparatus is lowered until its weight is carried by the edges of the discs 25 and, in part, if the swath height is great enough, by the surface of the roller 14 engaging the swath of crop over which the tractor is to pass. In this position the rake wheels 19 are at a position such that they will engage and gather towards the roller any swath which  
120 extends beyond the width of the roller.

Upon forward travel of the tractor with the apparatus lowered the swath in advance of the tractor is engaged by the roller and discs rolling over the swath and is compressed  
125 downwardly against the ground, the roller rotating by such engagement and forward movement of the tractor. A baler towed by the tractor, in this case directly behind the tractor, is thereby presented with a compressed  
130 swath of the desired width and is able to pick

up and bale the crop in the swath.

- The apparatus finds particular application with balers forming round bales but can also be used with balers which make rectangular bales. The crop may be straw, hay, grass for silage or other crop materials which are laid in a band preparatory to other treatment.

#### CLAIMS

1. Swath treatment apparatus which comprises a roller rotatable about a generally horizontal axis, a frame for supporting the roller and mounting means on the frame whereby the apparatus is mountable on the forward end of a tractor whereby upon passage of the tractor over a swath the roller engages the swath to compress the swath against the ground.
2. Apparatus according to claim 1 wherein the frame carries crop gathering means towards the ends of and in advance of the roller to move crop inwardly into the path of the roller.
3. Apparatus according to claim 1 or 2 wherein the roller is of generally cylindrical form and has discs axially-spaced along the roller, the peripheral edges of the discs being spaced from the roller surface and defining the minimum distance of the roller surface from the ground.
4. Apparatus according to claim 1, 2 or 3 wherein the mounting means includes a power-operated three point linkage whereby the roller is lifted and lowered relative to the ground surface, the apparatus in use being lowered until the apparatus contacts the ground or crop on the ground, movement over the ground causing rotation of the roller.
5. Swath treatment apparatus substantially as described with reference to the drawings.

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